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FORMULA 1 IN SCHOOLS

‘Aero’smiths

Students learn engineering through mini-racers

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GREENFIELD – Greenfield-Central sophomore Daniel Going had no idea his Formula 1 car would perform so well.

His racecar hasn’t turned laps like the 1,000-horsepower cars raced by superstars like Lewis Hamilton in grands prix in Europe, Asia and South America. In fact, Going’s car doesn’t even have an engine, per se.

But it’s still one sophisticated piece of work. Going is on a G-C team called Donkey Punching Kangaroos (DPK) that last week won the first state competition for F1 in Schools – a program in which teams of students compete with miniature F1 cars made from blocks of balsa wood.

F1 in Schools teams must design, analyze, manufacture, test and refine their cars, which are fueled by small canisters of carbon dioxide in the rear of the car. Teams use computer software in designing their cars and take ideas from full-size racing cars. They must also create a portfolio of their work.

Cars are raced two at a time in two types of races: a computerized automatic start and a manual start. Teams are also judged on a formal presentation and informal discussions with judges.

“It’s not just a race,” said G-CHS technology teacher Mark Holzhausen. “The overall score is what determines the winner. There are a lot of real-life engineering skills that are learned through this.”

Students in more than 30 countries participate in F1 in Schools, which was launched in 2000 as a way of teaching students about engineering and raising its profile as a career option, according to www.f1inschools.us. Winners in national competitions met last year at the Malaysian Grand Prix to determine a world champion. Members of the world champion team receive engineering scholarships.

Each F1 in Schools team member has specific responsibilities in creating a car, a process that can take six to eight weeks. Teams of three to six people include a team manager, resources manager, manufacturing engineer, design engineer and graphic designer.

Here in Indiana, seven teams from four schools competed in the state competition last Wednesday at Indiana University-Purdue University Indianapolis. There were two teams from Greenfield-Central.

“We got to watch a lot of other teams that had good designs but had flaws that you could spot when you looked at them,” said Chris Edge, a member of Distance, the other G-C team.

DPK had the fastest car and the highest overall score. The name “Donkey Punching Kangaroos” came from a random team name generator found online, said DPK member Mike Visnich.

“We started working like a month before the competition,” Visnich said. “I did a lot of the manufacturing and designing of the car.”

Distance was disqualified due to a design error involving the back of the car that posed a safety issue.

“Had they not made that fatal error, I think they would have won the whole thing,” Holzhausen said. “The thing I’m most proud of is the dignity and maturity that Team Distance showed when they were disqualified.”

“It wasn’t too troubling,” said G-CHS junior Ronnie Jones, who joined Distance two days before the competition to assemble design documents and prepare a presentation. “I understand where they were coming from. The head guy kept complimenting us on how we took it. It was a genuine (safety) issue.”

Visnich said he felt bad that Distance was disqualified because the two teams had spent so many hours preparing for the competition side by side – and DPK wanted to see whose car was better.

G-C’s teams manufactured their cars with a microrouter that reads a computer-aided design program to cut the car to precise specifications. G-C Superintendent Linda Gellert helped the high school secure the funding for the machine after a team of F1 in Schools champions from Sheffield, England, visited G-C when they came to Indiana for the U.S. Grand Prix in 2006, said G-C technology teacher Gary Wynn. (At that time, G-C didn’t have a way to manufacture the miniature cars.)

“This (winning the Indiana competition) is the result of the wish that we had that we needed it here at this school,” Wynn said.

As the Indiana F1 in Schools champion, DPK will head to Denver to compete in the national championship on June 28-July 1.

Visnich and Going selected Distance member Chris Edge to accompany them to Denver due to his dedication and computer design skills.

“It’s going to be fun, but we have to improve things before we’ll be ready,” Visnich said, adding that they’ll need to work on their oral

presentation.

G-C's technology department is accepting donations to help with the cost of sending the students to Colorado. Call (317) 462-9211 and ask for Holzhausen or Principal Steve Bryant if you're interested in making a donation.



FYI: F1 IN SCHOOLS

■ More than 30 countries now participate in F1 in Schools just seven years after its launch in England. Among the participating nations are China, Brazil, Canada, Germany, the Czech Republic, France, Spain, Portugal, Australia, South Africa and Saudi Arabia.

■ Teams must have three to six members and use SolidWorks computer-aided design software to produce their ideas and model them in three dimensions. They must then use computer-aided manufacturing software and a machine such as a Denford router. Cars must be made from a single block of balsa wood and completed with a high quality painted finish.

■ Each team brings two identical cars to a race event – a primary race car and a backup car. Teams also produce a design portfolio of up to 20 pages that details initial ideas, design development and testing.

Source: Rules and regulations at www.f1inschools.us





Tom Russo / Daily Reporter Up to specs: Greenfield-Central student Mark Evans looks over computerized blueprints of his racecar design Tuesday at Greenfield-Central High School. Students at G-C are taking part in the F1 in Schools program, which teaches them to design their own miniature racers to test their aerodynamic and several other engineering qualities. Below: Student Ronnie Jones holds his F1 model.



Tom Russo / Daily Reporter Speed freaks: Greenfield-Central students (from left) Daniel Going, Richard Hurt, Chris Edge, Kyle Lawrence, Mike Visnich, Ronnie Jones and Mark Evans all are taking part in the F1 in Schools program. DPK, one of G-C's two teams to compete in the state finals, advanced to national competition.

TEAMS IN INDIANA COMPETITION

Greenfield-Central High School:
Distance; DPK
Indian Creek High School: The
Hurricanes; Dirty Birds
Mount Vernon Senior High
School (Mount Vernon, Ind.):
Team Adrenaline
Portage Middle School:
Scorchers; The Thunder Racers

G-C TEAMS

DPK: Mike Visnich, Daniel Going,
Bradán Sharritts
Distance: Chris Edge, Mark
Evans, Richard Hurt, Sammy
Zamara, Kyle Lawrence, Ronnie
Jones